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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/615,132

07/13/2000

Iain Robertson

TI-26019

6993

7590

10/20/2003

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EXAMINER

SORRELL, ERON J

ART UNIT	PAPER NUMBER
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2182

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DATE MAILED: 10/20/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/615,132

Applicant(s)

ROBERTSON, IAIN

Examiner

Eron J Sorrell

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 July 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7-11, 13-17, 24 and 25 is/are rejected.
- 7) ☒ Claim(s) 19-23 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 July 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to because figure 4 appears to be missing flow chart elements. Item 412 in the flow chart is missing the step that occurs if the condition in item 412 is a "No". The "No" arrow is present, but does not point to anything. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1,5,7,11,13,17,24, and 25 are rejected under 35 U.S.C. 102(e) as being anticipated by Herring (U.S. Patent No. 6,606,326).

4. Referring to method claim 1, apparatus claim 7, and system claim 13, Herring teaches a data transfer system and method comprising:

a plurality of data processors, each data processor capable of generating a data transfer request (see lines 40-53 of column 1);

a request queue controller receiving, prioritizing, and dispatching data transfer requests (see paragraph bridging columns 7 and 8), each transfer request specifying a data source, a data destination, and a data quantity to be transferred (see lines 16-24 of column 3);

a data transfer hub connected to the request queue controller effecting dispatched data transfer requests (see item labeled 360 in figure 3);

a plurality of ports, each of the plurality of ports having an interior interface connected to the data transfer hub and an exterior interface configured for an external memory/device expected to be connected to the port, the interior interface and the exterior interface operatively connected for data transfer therebetween (see items labeled "input ports" and "output ports" in figure 3);

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the data transfer hub controlling data transfer from a source port corresponding to the data source to a destination port corresponding to the data destination in a quantity corresponding to the data quantity to be transferred of a currently executing data transfer request (see lines 16-40 of column 3), the data transfer hub further controlling the source port and destination port to:

in response to a data transfer request (see lines 13-25 of column 2), querying the destination port to determine if the destination port is capable of receiving data of a predetermined size (see paragraph bridging columns 3 and 4);

if the destination port is not capable of receiving data of the predetermined size, waiting by not reading the data of predetermined size from the source port corresponding to the data transfer request and not transferring the data to the destination port until the destination port is capable of receiving data (see paragraph bridging columns 3 and 4); and

if the destination port is capable of receiving data of the predetermined size, reading data of the predetermined size from the source port and transferring the read data to the destination port (see lines 13-35 of column 2).

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5. Referring to method claim 5, and apparatus claim 11, and system claim 17, Herring further teaches the limitation of:

while waiting until the destination port is capable of receiving data, determining if a second data transfer request is pending between the source port and a second destination port (see lines 38-49 of column 4);

if a second transfer request is pending querying the second destination port to determine if the second destination port is capable of receiving data of a predetermined size (see paragraph bridging columns 3 and 4);

if the second destination port is not capable of receiving data of the predetermined size, waiting by not reading the data of predetermined size from the source port corresponding to the data transfer request and not transferring the data to the second destination port until the second destination port is capable of receiving data (see paragraph bridging columns 3 and 4); and

if the second destination port is capable of receiving data of the predetermined size, reading data of the predetermined size from the source port and transferring the read data to the second destination port (see lines 13-35 of column 2).

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6. Referring to claim 24, Herring teaches the plurality of data processors, the data request queue controllers, the data transfer hub and the plurality of ports are disposed of on a single chip (see figure 3).

7. Referring to claim 25, Herring teaches the data processing system further comprising:

a data memory having a data transfer bandwidth on the same order of the data transfer hub (see lines 4-24 of column 4; Note that since data is transferred from the FIFOs (data memories) to the data transfer hub, the bandwidths of the FIFOs must be on the same order as the bandwidth of the data transfer hub);

an internal memory port connected to the data transfer hub and the data memory (see connections from the FIFOs inside the ports to the data transfer hub 360);

the data transfer hub further controlling the source port and the destination port to not query the internal memory port to determine if the destination port is capable of receiving data of a predetermined size if the internal memory port is a destination port of a data transfer request (see line 55 of column 7 to line 6 of column 8).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 2,3,8,9,14, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Herring in view of Krein et al. (U.S. Patent No. 5,630,077 hereinafter "Krein").

10. Referring to method claim 2, apparatus claim 8, and system claim 14, Herring fails to teach that each port comprises at least one write reservation station and the step of querying the destination port includes:

determining whether any write reservation station of the destination port has not been allocated for receipt of data;

if at least one write reservation station is not allocated for receipt of data determining if the destination port can receive data and allocating a write reservation station for receipt of data; and

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the step of transferring the read data to the destination port includes transferring the read data to the allocated write reservation station of the destination port.

Krein teaches the above limitations (see paragraph bridging columns 3 and 4; Note the write reservation station is the output buffer).

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the method and system of Herring with the teachings of Krien. One of ordinary skill in the art at the time of the applicant's invention would have been motivated to make such modification in order for the source node to be alerted if the destination node does not have the buffer capacity to receive the transfer as suggested by Krein (see paragraph bridging columns 3 and 4).

11. Referring to method claim 3, apparatus claim 9, and system claim 15, Krein teaches disallocating the write reservation station upon transfer of the data to the application unit (see item labeled 166 in figure 9).

Both Herring and Krein are silent on the transferring the data out of the write reservation station to an application unit at a data transfer rate of the application unit, however Krein

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does suggest optimizing the system bus and transfers (see lines 63 of column 1 to line 14 of column 2).

It would have been obvious to modify the combination of Herring and Krein such that the data is transferred out of the write reservation station to the application unit at the rate of the application to optimize the bus usage as suggested by Krein.

12. Claims 4,10, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Herring in view of Krein as applied to claims 2,8, and 13 above, and further in view of Grun (U.S. Patent No. 6,629,166).

13. Referring to method claim 4, apparatus claim 10, and system claim 16, the combination of Herring and Krein fails to teach the step of allocating a write reservation station includes storing a data identifier corresponding to the write reservation station, and the step of transferring the read data in a write reservation station includes storing the read data in a write reservation station having a data identifier corresponding to the read data.

Grun teaches a switch in a data transfer system comprising a write reservation station (buffer) wherein the step of allocating the write reservation station includes storing a data

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identifier corresponding to the write reservation station, and the step of transferring the read data in a write reservation station includes storing the read data in a write reservation station having a data identifier corresponding to the read data (see lines 12-19 of column 12).

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the combination of Herring and Krein with the teachings of Grun in order to distinguish the write reservation station from one another simplifying the transfer operations.

Allowable Subject Matter

14. Claims 19-23 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

15. Applicant's arguments with respect to claims 1,2,5,7,8,11,13,14, and 17 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

16. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eron J Sorrell whose telephone number is 703 305-7800. The examiner can normally be reached on Monday-Friday 9:00AM - 5:30PM.

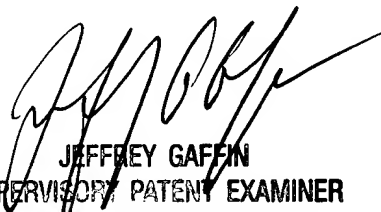
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey A Gaffin can be

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reached on 703 308-3301. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 305-3900.

EJS
October 9, 2003



JEFFREY GAFFIN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100